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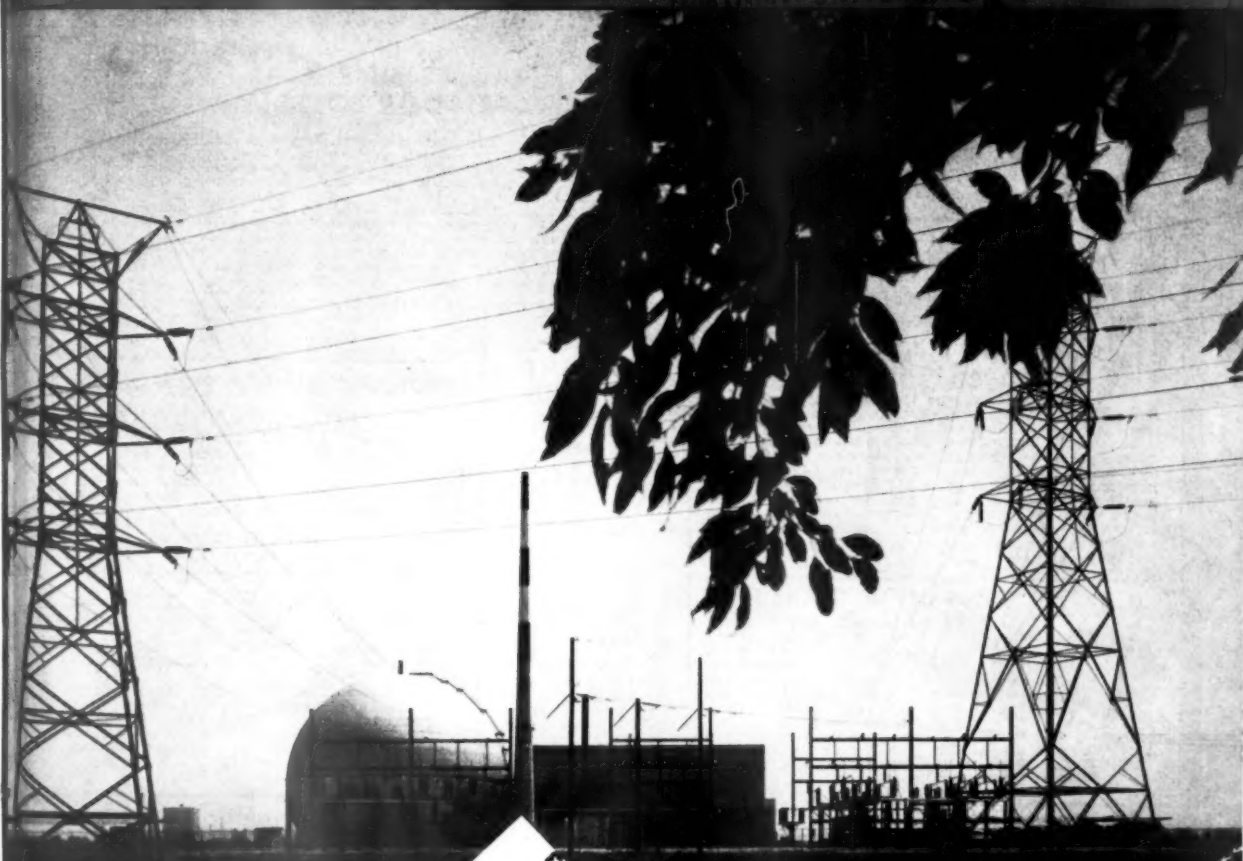
150 A YEAR

October 22, 1960

VOL. 76, NO. 17 PAGES 257-273

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Power from the Atom

See Page 266

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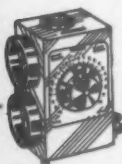
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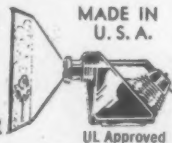
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ANTHROPOLOGY

More Ancient Men Found

The remains of three more ancient men have been found 27 feet below the floor of Shanidar cave in Iraq. They are about 60,000 to 70,000 years old.

► SHANIDAR CAVE, about 2,500 feet up the side of one of the Zagros Mountains in Iraq, may be the most fruitful source of remains of ancient man known to science, Dr. T. Dale Stewart, Smithsonian anthropologist, says.

Dr. Stewart has recently returned from an expedition to Iraq, undertaken jointly by Columbia University and the Smithsonian Institution under a grant from the National Science Foundation.

The expedition was led by Dr. Ralph Solecki of Columbia University. Associated with him in exploring Shanidar Cave were Dr. Stewart, Dr. Dexter Perkins Jr., Philadelphia Academy of Sciences, Dr. Rose L. Solecki, also of Columbia and the leader's wife, and Jacques Bordaz, graduate student at Columbia.

Three new skeletons found in Shanidar this past summer, in addition to three others found in 1957 and an ancient infant found in 1953, make it possible to add much to man's knowledge of early evolution.

One of this year's finds, known to the scientists as Skeleton No. 2, has been reconstructed and studied by Dr. Stewart. A difficult task faced him for this skull was



SKELETON OF SHANIDAR IV—

crushed completely flat and the head was rolled back so that the neck bones were

parallel to and behind the jaw bone. Dr. Stewart restored the neck bones so that they now constitute what is probably the finest set of neck vertebrae of Neanderthal Man known to science.

Comparison of No. 2's leg bones with those of No. 1, found last year in a layer of the cave floor laid down some 15,000 years later, showed that the earlier form, No. 2, stood in life about 5 feet, 3 inches tall—five or six inches shorter than his successor, No. 1.

No. 2 was therefore possibly more primitive than No. 1. But there is also a possibility, Dr. Stewart warns, that No. 1 was an unusually tall individual and No. 2 was just a runt. Skulls of the two were equally primitive. The finds at Shanidar will help scientists settle such questions as whether a skeleton is typical of its group or is exceptional. The three skeletons discovered in 1957 were all found at about the same depth, 14½ feet, representing an age of about 45,000 years. The three found this summer were some 27 feet under the cave floor—about 60,000 to 70,000 years old.

Measurements of these two sets of three skeletons will help show which individuals were about average for their time and which were unusual cases.

What scientists would like to find now is the remains of an individual who was definitely a woman.

• Science News Letter, 78:239 October 22, 1960

ANTHROPOLOGY

Plan East African Study

► A \$200,000 RESEARCH PROJECT will send a team of anthropologists from two campuses of the University of California to the East African highlands next June.

The objective will be to discover how the basic economy of a people shapes other parts of their culture.

The project is under the direction of Dr. Walter Goldschmidt, professor of anthropology-sociology at UCLA. Dr. Edgar V. Winans, assistant professor of anthropology at Riverside, is assistant director. Both have already spent a year in East Africa.

The team also includes S. Chadwick Oliver, Riverside, anthropologist on leave from Texas University; Dr. Robert B. Edgerton, Pacific State Hospital, Pomona, anthropologist; and Dr. Charles F. Bennett, UCLA geographer.

Dr. Goldschmidt says "we believe that the nature of economic life will influence the manner in which the society is organized, the laws and customs that prevail, and even the attitudes and sentiments of the people themselves."

East Africa provides an excellent natural laboratory to test these important ideas, the UCLA professor explained. Among the tribes of the East African highlands, extend-

ing from the Sudan and Western Ethiopia through Tanganyika, there are several who are divided between sections that engage in farming and sections devoted to the herding of cattle. This makes it possible to test the effect of economy upon life modes.

The team will study several such tribes. They will not only investigate details of the economy and the custom and behavior of the people, but will give psychological and "attitude" tests to samples of each population.

The anthropologists believe that herders will tend to be more militaristic and more individualistic, and that they will display more aggressive personalities than their farmer cousins. Even the relation between the sexes and attitudes toward sexual behavior are expected to differ in the two types of communities.

In view of the ancient antipathy between herders and farmers, between nesters and cattle men, the theories tested here have bearing on the understanding of history, Dr. Goldschmidt said. The program is viewed as basic research in the forces that shape human behavior and human culture.

• Science News Letter, 78:259 October 22, 1960

SOCIOLOGY

Dope Sales in U. S. Highest in the World

► INTERPOL'S NUMBER ONE CRIME problem is dope. And the United States is the number one center for the sale of illegal narcotics. More money is spent here for dope than anywhere else in the world.

The high standard of living is the reason given for this U. S. leadership by Assistant Secretary of the Treasury A. Gilmore Flues, chief of the U. S. delegation to the International Criminal Police Organization meeting in Washington, D. C.

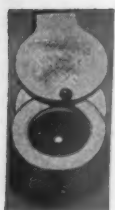
There are 45,000 registered drug addicts in the United States and an undetermined number of victims of the dope habit not yet registered.

Mafia, the international criminal organization sometimes referred to as the Black Hand, and which originated in Sicily in the early 1800's, is believed to be behind most organized international illegal activities.

Currently, the center for Mafia is the United States, Charles Siragusa, U. S. Interpol delegate attached to the Bureau of Narcotics, Washington, D. C., told SCIENCE SERVICE. Chicago is an important Mafia center, he said. Among its activities are white slavery, counterfeiting, smuggling and drug trafficking.

Interpol assists the U. S. in its fight against Mafia and particularly the illegal drug traffic by the swift exchange of police information on an international scale by radio and wire.

Improvement in communications by means of wireless and radio led to the founding of Interpol in Vienna 37 years ago, Marcel Sicot, Secretary General of



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Interpol, said. Radio still remains the most valued scientific tool of Interpol at the international level.

More than 60,000 cables passed between the international headquarters of Interpol in Paris and its national bureaux in the 60 affiliated nations last year.

"We use no scientific or armed police at our international headquarters," the Secretary General said. This type of detection is done, however, at many of Interpol's national central bureaux. These bureaux may be organized as each country deems best. They compile statistics, pass on information of international interest, and undertake within their local jurisdictions all investigations, searches and arrests.

Fingerprints of international criminals are classified under a special system, related to certain hereditary characteristics.

Photographs are classified in accordance with six characteristics of Bertillon (a famous French anthropologist who devised a method of identification based on measurements).

"This system makes it possible not only to limit the field of comparisons, but also to identify persons who have attempted to alter their appearance," Interpol authorities claim.

A synoptic index, using a system of color tags, each corresponding to a factor in the description, makes identification of a wanted person possible in a very short time even if only one of these factors is known.

Finally, a perforated card index, with each card dealing with only one circumstance or element of the case, is used. Each perforation refers to a particular dossier that can be found simply by superposing cards.

Interpol is supported by contributions from each affiliated country. Its annual budget is \$180,000, of which the U.S. contributes only \$11,000, despite its extensive use of Interpol services.

• Science News Letter, 78:259 October 22, 1960

GENERAL SCIENCE

Political Reasons Behind Atom Program

► POLITICAL NOT SCIENTIFIC reasons are behind the failure of the Atoms for Peace program, Sen. Clinton P. Anderson (D-N.M.), chairman of the Joint Committee on Atomic Energy, said in Washington.

He based this judgment on the reports of a year-long survey made by Robert McKinney, editor and publisher of the Santa Fe New Mexican, at the Congressional Committee's request.

The report is a five-volume study of international relations and policies relating to the atomic programs of the United States.

Among the recommendations made by the McKinney report are that the next international conference on civilian atom power "be specifically directed to broadening East-West technical relationships; that it be organized under the aegis of the International Atomic Energy Agency, rather than the United Nations; and that it be held in the Soviet Union in 1962."

Soviet representatives have visited unclassified portions of American laboratories otherwise devoted to weapons research. American exchange scientists have not had access to any Soviet facility officially designated by the USSR as a nuclear weapons development laboratory, the McKinney report stated.

Of the 2,700 accredited representatives who attended one international conference, 2,400 were from the non-Soviet bloc countries. Under the broad aegis of the IAEA, simultaneous visits to Moscow by several thousand scientists from the West for peaceful reasons "could hardly be refused," Sen. Anderson noted in endorsing the McKinney recommendations.

• Science News Letter, 78:260 October 22, 1960

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BIOCHEMISTRY

Evolution Loses Enzyme

► SOMEWHERE along the path of evolution between rabbits and man, a particular liver enzyme disappeared. Loss of this enzyme is the reason man is unable to manufacture vitamin C within his own body, a team of researchers from India has reported.

Drs. I. B. Chatterjee, N. C. Kar, N. C. Ghosh and B. C. Guha of the University College of Science and Technology, Calcutta, reported at a New York Academy of Sciences conference that the chemical conversion of sugar to vitamin C (L-ascorbic acid) in animals is completed only when the enzyme L-gulonoxidase is present.

In amphibians, reptiles and a number of birds, this enzyme is found within the minute particles (microsomes) embedded in kidney cells. But in other birds and in those mammals capable of manufacturing vitamin C, the enzyme has moved to the liver cells. Finally, in the higher mammals, and in at least one bird, the enzyme disappears completely.

All this indicates, the researchers state, that "in the evolutionary ascent," the enzyme originally residing in the kidney gradually passes into the liver and finally by genetic effect, disappears from the liver also.

In mice, rats, rabbits, pigeons and chickens, but not in goats, a natural substance cuts down on the amount of vitamin C produced. This substance can be overcome by vitamin K, and by the chlorides of

lithium, sodium, potassium and cesium.

Vitamin C production in rats also can be increased by certain drugs, Drs. A. H. Conney, George A. Bray and J. J. Burns of the National Heart Institute, Bethesda, Md., reported at the same meeting.

Among the active agents are certain hypnotics, painkillers, muscle relaxants, antirheumatics, antihistamines and cancer-producing agents. The action of these drugs the NHI team believes, increases the metabolism of sugar and stimulates the liver microsomal enzymes that metabolize drugs.

Research indicates that some of the drugs and vitamin C reciprocally take part in building up and tearing down each other.

• Science News Letter, 78:261 October 22, 1960

BIOCHEMISTRY

Plant Growth Regulators Give Animals Fits

► THE PLANT GROWTH regulators have invaded the animal world and the animals literally are having fits, three French researchers report.

A small amount of one particularly active chemical dropped into a fish bowl causes goldfish to have convulsions and also brightens up their color. The myna fish, a European relative of the goldfish, behaves in the same manner.

In the Siamese fighting fish, ordinarily

a peaceable creature until another male of the same species appears, the chemical can work the male into a pugnacious lather even when there is nothing around to fight. Just as if the enemy were really there, the fish puffs up its fins and brightens by expanding the color cells in its skin.

The researchers, Dr. J. Thuillier of Saint Anne Hospital, Paris, and Drs. P. Rumpf and Germaine Thuillier of Research and Study Center of Applied Organic Chemistry, state in *Nature*, 188: 152, 1960 that the action of the growth regulator chemicals is to stimulate the central nervous system, probably in the region of the hypothalamus.

The particular substance used in their tests, an ester of para-chlorophenoxyacetic acid, does stimulate the hypothalamic area.

• Science News Letter, 78:261 October 22, 1960

ROCKETS AND MISSILES

World TV Via Satellites Set at \$170,000,000

► FIFTY IMPROVED COURIER-TYPE communications satellites would provide world-wide telephone and television facilities for a mere \$170,000,000: \$100,000,000 for the satellites and \$70,000,000 for the ground stations.

These are the figures the American Telephone and Telegraph Company estimated for the Federal Communications Commission in Washington, D. C. Without the luxury of television facilities, the telephone system alone would cost only \$115,000,000.

AT&T also estimated the cost of an economy system to link America, Europe and Hawaii with 30 active repeater satellites. The price for 600 telephone circuits and a two-way TV channel: \$82,000,000.

But Charles M. Mapes, assistant chief engineer for AT&T, pointed out to the FCC that the cost of the latest and most efficient undersea cables now being designed is "substantially more per circuit than the indicated cost for satellite communication and this cable cannot carry transoceanic wide-band television."

• Science News Letter, 78:261 October 22, 1960

ROCKETS AND MISSILES

New Method Pinpoints Satellite's Position

► A HIGHLY ACCURATE method of pinpointing the position of a satellite or missile when it is thousands of miles from the earth has been developed by scientists at the Boulder Laboratories of the National Bureau of Standards in Colorado.

An existing chain of ground stations would be used to receive a radio signal from a satellite or other space vehicle at four or more points on earth. The position of the satellite would be computed from the difference in the signal's time of arrival at each of these points.

This new method of space navigation is most effective when the space vehicle is a few hundred miles to several thousand miles from the earth's surface. Conventional techniques are more accurate closer to earth.

• Science News Letter, 78:261 October 22, 1960



TRACKING TUMBLING—A new two-foot-long device, developed by the Raytheon Company, is demonstrated by engineers Andre Krutchkoff, left, and Wesley Haywood, who are tracking Echo I. The instrument was unveiled at Jupiter, Fla., during a meeting of tracking station experts of the Smithsonian Astrophysical Observatory's world-wide tracking network.

EDUCATION

High Birth Rates Threaten

► IN 1980, the school population is expected to be 59,000,000. This means facilities will be needed for 14,000,000 more children than the 45,000,000 now overcrowding the nation's schoolrooms.

This gain of almost a third in elementary and high-school age children is estimated by statisticians of the Metropolitan Life Insurance Company, based largely on the record high number of births throughout the postwar years and their expected continuation at a relatively high level.

Deterioration of educational systems may be expected unless school facilities are sufficient to take care of this growth. Other effects—overcrowded suburban areas, decaying central cities, vanishing water supplies, higher taxes—all are part of the impact of our burgeoning population on social and economic structures.

Present food resources in the United States are more than sufficient to meet national demands despite increased population. In fact, U.S. food surpluses are economically undesirable from a national viewpoint.

However, on an international level, food production throughout all the areas of the world, developed as well as underdeveloped, must be increased to meet world population demands. Maxwell L. Stewart of the Public

Affairs Committee has urged that the resources of science be applied to this problem.

"With hundreds of millions still without adequate food and the world's population increasing by some 50,000,000 a year, it has become evident that much more needs to be done, and done quickly, if man's hunger is to be conquered," Mr. Stewart reports in a new Committee pamphlet, "That No Man Shall Hunger."

The Committee's main drive for the coming year will be to persuade farmers to use better seeds. Similar drives with the help of public support have helped conquer livestock disease, made new foods available, and increased fishery catches.

Others also concerned with meeting the demands of growing world populations, such as the Population Reference Bureau, believe the answer realistically lies in birth control rather than in increasing agricultural production. More food in itself is not the answer to all the problems that come with expanding populations. As they point out, food production does not give us more schools, housing, water, sewage disposal systems, and other urban and rural requirements for adequate living standards.

• Science News Letter, 78:262 October 22, 1960

GENERAL SCIENCE

20th Talent Search Starts

► THE 20TH SCIENCE TALENT SEARCH is being launched with an invitation to seniors in 30,000 public, private and parochial high schools throughout the United States to compete for special recognition of high-level ability in science. Four or five hundred of these students may become members of the Honors Group.

The most outstanding of the Honors Group will be selected as the top 40 winners who will receive invitations to the all-expenses-paid five-day Science Talent Institute in Washington next spring. During the Institute the winners will be judged for \$34,250 in Westinghouse Science Scholarships and Awards.

Conducted by SCIENCE SERVICE through its Science Clubs of America, the Science Talent Search is supported by the Westinghouse Educational Foundation of the Westinghouse Electric Corporation.

Watson Davis, director of SCIENCE SERVICE, in announcing this year's Search, stated that "widespread recognition of the crucial importance of scientific knowledge to human existence has added new urgency to this program dedicated to discovering potentially creative scientists among America's young people."

"Their education and professional careers can then be assured so their contributive work may be added to that of the outstanding young research scientists discovered in 19 previous Searches."

Principals and science teachers in second-

ary schools throughout the country now are receiving suggestions on "How You Can Search for Science Talent." This material will help them in recognizing science talented boys and girls and encouraging the students to enter the Twentieth Science Talent Search.

Faculty members will request, and after Nov. 15 receive, more than 30,000 sets of entry materials for their most promising seniors. Of these, it is estimated that more than 4,500 students will complete all entry requirements. About ten percent will be named members of the Honors Group.

All winners and other members of the Honors Group will be recommended to colleges, universities and technical schools of their own choice.

Unlike many scholarship competitions, the Science Talent Search has no rule prohibiting those who receive its honors from accepting additional scholarships from colleges, universities, industry or foundations.

• Science News Letter, 78:262 October 22, 1960

GENERAL SCIENCE

Science Fair Scientists Sail with U.S. Navy

► THE NAVY SCIENCE CRUISERS have gone "down to the seas again" for the third consecutive annual cruise arranged by the U. S. Navy to show science-in-action to high school juniors and seniors.

Each spring the Cruisers are chosen for

their outstanding science projects exhibited at the National Science Fair-International and at regional science fairs affiliated with this international program which is coordinated by SCIENCE SERVICE.

In the fall, Navy planes fly the boys from bases near their homes on farms and plains, in manufacturing towns, mountain villages and metropolitan centers to East and West Coast embarking points.

The West Coast cruise for 73 students was based at San Diego, Calif., from Sept. 24 to Oct. 1.

On the East Coast, six Cruisers sailed from Mayport, Fla., 73 from Norfolk, Va., and 27 from Charleston, S. C.

Afloat and ashore, these 179 students experienced several of the most privileged days of their young lives in seminars, tours and informal discussions with Navy scientists and specialists in laboratories where they were guests.

They gained firsthand information on such subjects as submarines, air operations, nuclear physics, astronautics, radar, sonar, computers and many other aspects of current research and development. Many of the young Cruisers received ideas and guidance toward their future professional training and careers.

The Atlantic cruises docked on Oct. 8, while the western Cruisers started for home and high school classes on Oct. 1.

The Navy Science Cruiser program was first launched by the U. S. Navy in cooperation with SCIENCE SERVICE in 1946 and was reinstated as a continuing program in 1958.

• Science News Letter, 78:262 October 22, 1960

EDUCATION

New Teaching Methods Urged for Creative Child

► TEACHERS MAY have to adapt present methods of instruction to recognize and meet the demands of the imaginative, creative child, a University of Chicago educator said in Washington, D. C.

The "creativity quotient" of the child must be measured as well as his intelligence quotient, Prof. J. W. Getzels stated at a news conference with Lawrence G. Derthick, U. S. Commissioner of Education. Tests that will show this ability should be devised, he said.

Dr. Derthick noted that we "may be losing as much as 70% of these gifted, creative children" by failing to recognize them in the home as well as in the school.

The Commissioner called the news conference to report on progress made in research sponsored by the U. S. Department of Health, Education, and Welfare on gifted and superior children. He predicted that educational changes in the next ten years as a consequence of current findings would be far greater than those that have occurred in our history.

Creative abilities show a sharp drop in the fourth grade, it was reported. This fourth grade slump is borne out by surveys over the past several years by SCIENCE SERVICE of science interests of students interested in science.

• Science News Letter, 78:262 October 22, 1960

PUBLIC HEALTH

Permit Lipstick Colors

► ELEVEN of the 13 colors previously banned for use in lipsticks, mouth washes, dentifrices or drugs are permitted temporarily in small amounts, or tolerances, under the new regulations issued by the Food and Drug administration under the Color Additives Amendment to the Federal Food, Drug and Cosmetic Act. Ten of the 11 are lipstick colors.

Published in the Federal Register of Oct. 12, the regulations become effective immediately.

The color amounts to be used are based on recently completed two-year animal feeding tests on two representative colors that provide assurance that the temporary tolerances will be safe.

Extensive pharmacological testing must be done by the manufacturers or users of color additives to support listing.

The new regulations terminate the listing of the colors External D and C Yellows Nos. 9 and 10 for any use in foods, drugs or cosmetics. Under the designations FD&C Yellows Nos. 3 and 4, these colors had been previously banned for all food, drug and cosmetic uses except external uses in drugs and cosmetics.

Previously permitted coal tar colors may continue to be used in foods, drugs and cosmetics without restriction on the amounts used until necessary retesting is done, which may be two and a half years from July 11, 1960.

FDA says that the reason for termination of FD&C Yellows Nos. 9 and 10 for all uses is that these colors cannot be produced with assurance that they do not contain

beta-naphthylamine, a known cancer-inciting agent. There is no scientific evidence to support a safe tolerance for these colors on products to be used in contact with the skin.

FDA Commissioner George P. Larrick called a meeting of industry representatives and all other interested persons to discuss the responsibility for future tests.

He said FDA could not possibly perform all the testing required on colors during the two and a half year transitional period.

• Science News Letter, 78:263 October 22, 1960

BIOLOGY

Shuffled Cells Can Reconstruct Same Organs

► FOR THE FIRST TIME scientists have demonstrated that completely reshuffled cells, taken from the liver or kidney of chick embryos, can reconstruct the same organ without outside direction.

The new technique opens the possibility of further explorations by biologists who may use it as a clue to understanding disturbances of self-organization that lead to malformations and tumors.

Two Rockefeller Institute scientists, Drs. Paul A. Weiss and A. Cecil Taylor, report in the Proceedings of the National Academy of Sciences, 46: 1177, 1960, that they incubated the cells of each organ for a brief period in pancreatin, an enzymatic extract of the pancreas.

The chick embryos from which the organs were removed were from eight to

14 days of age, and were developed sufficiently to have bodily movement. (It takes about 21 days to hatch a chick egg.)

The scientists scrambled the cells from the removed organs (after stripping them of the physiological "glue" that binds them together) into a random mass and placed this on the surrounding membrane of eight-day-old chick embryos left to grow in their shells. In this way the graft received nutrition and blood supply.

After nine days of development, the professors removed the transplanted mass and studied sections under the microscope. They discovered typical miniature organs from which the cells had been taken.

Whatever the blood supply and chick membrane may have contributed to the advanced development of the formations they "certainly could have added nothing to make the liver cells reconstitute a typical liver; the kidney cells, a typical kidney; and the skin cells, feathers," the investigators observe. The blood supply and place of development were identical for all of them.

Other investigations have shown reconstruction of dissociated cells at the tissue level, but none have demonstrated reconstruction of such complex organs as Drs. Weiss and Taylor have reported. They have shown that whole organs can be formed from cells isolated at rather advanced stages.

• Science News Letter, 78:263 October 22, 1960

MEDICINE

Radioactive Seeds Check Breast Cancer

► HOPE FOR VICTIMS of rapidly spreading breast cancer is promised from experiments in which tiny, radioactive metallic seeds are planted in the pituitary gland.

An evaluation of a new and relatively safe procedure as a means of controlling this form of breast cancer is being carried out by a surgeon-endocrinologist-radiologist team at the University of California at Los Angeles Medical Center.

The team consists of Dr. Robert W. Rand, Paul H. Crandall, David Solomon, Alfred M. Dashe, Joseph L. Westover and W. Eugene Stern. The project is being supported by the U. S. Public Health Service.

Breast cancer, which spreads to the lymph glands and other parts of the body, requires certain hormones whose production is triggered by the pituitary in several glands, including the adrenals and ovaries.

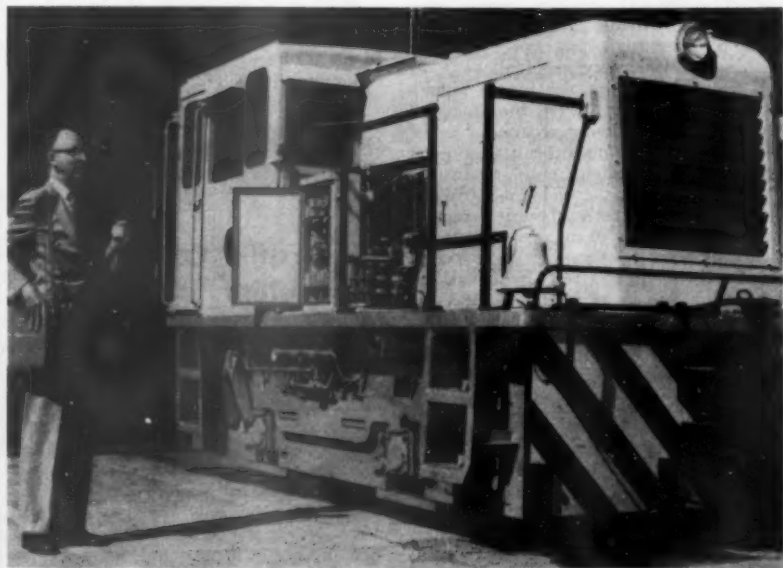
The standard means of denying these hormones to the cancer is actual surgical removal of the pituitary gland, which has brought relief to some victims. The new method is being compared with the standard method in the current study.

Radioactive yttrium seeds can be placed in the pituitary with the help of precise instrumentation and techniques developed at UCLA.

The tiny metallic seeds are planted via a hollow needle that is inserted through the nose and sinus into the gland. The radioactivity of the seed destroys the gland.

The new technique has been used with 17 cases to date and continues to show promise.

• Science News Letter, 78:263 October 22, 1960



RADIO-CONTROLLED LOCOMOTIVE—All the functions of a normal diesel-electric locomotive will be controlled by a black box in the cab of the engine. Holding a transmitter for sending signals to the black box is J. W. Brauns of General Electric's Locomotive and Car Equipment Department in Erie, Pa.

MEDICINE

Aspirin As Effective As ACTH and Cortisone

► **ASPIRIN** is as effective in treating rheumatic fever as ACTH and cortisone, a five-year international study shows.

The British Medical Journal, Oct. 8, 1960, reports that only 14, or three percent, of 497 children studied in Britain, the United States and Canada died of rheumatic heart disease during the five-year period. All were under 16 years old.

The major factor in determining whether a patient will have rheumatic heart disease at the end of five years, the study shows, is the status of his heart at the time treatment is begun. It is important to know the initial condition of the heart to evaluate treatment.

In 96% of the children studied who had no inflammation of the heart when treatment began, there was no heart disease at the end of five years. In cases with pre-existing heart trouble, the outlook was poor. Some response was seen among patients with mild or serious heart conditions that began only at the time of the first onset of rheumatic fever.

Modern treatment of rheumatic fever, associated with streptococcal infection, is not alone responsible for the small number of deaths in this study as compared with previous investigations. Penicillin and sulfadiazine treatment, along with improved standards of living and a change in the natural history of rheumatic fever, are taken into account.

The cooperative research was made possible by grants and aid from agencies in the three countries: the U. S. Public Health Service, the American Heart Association, the Canadian Arthritis and Rheumatism Society and the Medical Research Council of Great Britain.

A previous report published in 1955 compared treatments at the end of one year. The present report compares the amount and severity of rheumatic heart disease in each of three groups at the end of five years. Both say there is no evidence that hormone treatment is superior to aspirin.

• Science News Letter, 78:264 October 22, 1960

MEDICINE

Three Physicians Get Albert Lasker Award

► **THE THREE PIONEERING** scientists who revolutionized treatment of heart patients by developing and prescribing anticoagulant drugs were named joint winners of the 1960 Albert Lasker Award of the American Heart Association in New York.

Anticoagulant drugs, given to slow down clotting time and prevent clot formation in blood vessels, can reduce the heart attack death rate by one-third.

For their work in this field, the scientists sharing the award are: Dr. Karl Paul Link, professor of biochemistry, University of Wisconsin; Dr. Irving S. Wright, professor of clinical medicine, Cornell University Medical College, New York; and Dr. Edgar V. Allen, senior consultant in medicine, Mayo Clinic, Rochester, Minn.

Dr. Link's research goes back 20 years to the time when cattle were bleeding to death after they ate spoiled sweet clover. The fatal ingredient in the clover, Dr. Link discovered, is dicoumarin.

After providing an antidote for the cattle, he went on to synthesize dicoumarol, the first orally administered anticoagulant.

Dr. Wright made medical history in 1938 by becoming the first physician in the U. S. to treat a patient with heparin, the intravenously administered anticoagulant. He later advanced the clinical use of dicoumarol and was among the first to use and advocate anticoagulants for treatment of heart attacks and strokes. The first large-scale cooperative study of anticoagulant therapy for coronary thrombosis, inspired and coordinated by Dr. Wright, resulted in wide medical adoption of this treatment.

Dr. Allen, who foresaw the clinical possibilities of dicoumarol long before they had been proved, was among the first to test the drug in the laboratory and then to use it clinically. In 1941, the same year Dr. Link announced the synthesis of dicoumarol, Dr. Allen's laboratory team released the first published report on the administration of this drug to human beings.

The awards are being presented at the American Heart Association's St. Louis, Mo., meeting on Oct. 22. Each investigator is to receive an honorarium of \$2,500, an illuminated scroll and a gold statuette of The Winged Victory of Samothrace, symbolizing victory over death and disease.

• Science News Letter, 78:264 October 22, 1960

BIOLOGY

Man Needs Both Night And Day in Outer Space

► **MAN MAY HAVE TO** take night and day artificially with him into space to keep him and his "living clocks" ticking, Dr. Colin S. Pittendrigh, professor of biology at Princeton University, reported.

"Living clocks" are the innate physiological rhythms that govern the biological functioning of all living organisms except bacteria. The rhythms depend to a great degree upon the light cycle alternating from day to night, the biologist explained.

"In man, for instance, there is a regular waxing and waning of sugar content in the blood, of body temperature, of endocrine gland activity," during this alternation, Dr. Pittendrigh said in an interview for Voice of America. His research has shown that these rhythms are matched to the period of the earth's rotation, which produces cycles of light and dark.

Without the cycle, these "living clocks" either might run too fast, too slow or even break down altogether, causing "stress, damage, even death to the organism."

"This means, among other things, that an aperiodic space capsule could very likely damage human passengers," Dr. Pittendrigh warned. The solution, however, is simple, he said. "It's simply a matter of lighting." He recommended more research on the subject, including a study of human rhythms in prolonged daylight such as occurs in the Arctic.

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IN SCIENCE

MEDICINE

Nasal Surgery Needed By Air-Blocked Babies

► **NEEDLESS DEATHS** of newborn infants with closed openings in the back part of the nose can be prevented by immediate nasal surgery.

Three speakers at the American Rhinologic Society meeting in Chicago said that in cases where both nasal airways are completely or partially blocked at birth, the child will suffocate rather than use his mouth to breathe. Babies instinctively breathe through the nose.

The obstruction may be bony, membranous or a combination of the two, the nose specialists said. In one-third of the blockage cases, the occlusion is in both nasal airways and must be recognized by the physician if immediate steps to save the child are to be taken.

If only one nasal airway remains closed, the child may grow up before the condition is recognized.

Mothers were warned that a child known to have a single closed passage should not sleep on the side of the good opening, as this might cause suffocation.

Symptoms to watch for are difficulty of breathing at feeding times, unexplained crying spells that might be caused by intermittent oxygen insufficiency, or continued white, egg-like, mucus discharges from one nostril.

Speakers on the subject, which was discussed at a symposium, were Drs. Henry H. Beinfeld, Prospect Heights and Long Island College Hospitals, Brooklyn; G. Slaughter Fitz-Hugh, head, department of otolaryngology, University of Virginia Hospital, Charlottesville; and Francis J. McGovern of Danville, Va., also associated with the University of Virginia Hospital.

• Science News Letter, 78:264 October 22, 1960

AERONAUTICS

Air Traffic Control Computer Planned

► **INSTALLATION** of a new computer designed specifically for use in air traffic control will be made by the Federal Aviation Agency early in 1961.

The computer, developed for the FAA by the Librascope Division of General Precision, Inc., of New York, automatically performs a number of routine operations heretofore done by hand by the air traffic controller. It prints flight progress information, updates, changes and stores this information, exchanges it with other control facilities concerned with the flight, warns the controller of impending conflicts of air traffic and generally assists him in controlling traffic from airport to airport.

• Science News Letter, 78:264 October 22, 1960

CE FIELDS

GENERAL SCIENCE

State Department Restrict U. S. Scientists

► UNITED STATES Government scientists are subject to a special State Department ruling limiting their freedom to attend meetings abroad, the journal *Science*, 132:863, 1960, charges editorially.

They are prevented from presenting papers at international meetings attended by scientists from countries not recognized diplomatically by the United States.

The editor of *Science*, Dr. Graham DuShane, points out that the U. S. stands to lose more than it gains by this policy. Any non-recognized country can block the attendance of our Government scientists at an international meeting merely by sending a representative.

The International Council of Scientific Unions passed a resolution in 1958 affirming the right of scientists to participate in international scientific activity "without regard to race, religion, or political philosophy" and stating that such participation "has no implications with respect to recognition of the government of the country or territory concerned." The Governing Board of the National Academy of Sciences-National Research Council endorsed this resolution in April, 1960.

• *Science News Letter*, 78:265 October 22, 1960

PHYSICS

Second Big Atomic Power Plant Formally Dedicated

See Front Cover

► NUCLEAR POWER being generated, or about to be generated, and fed into electric transmission lines of the nation now totals 350,000 electric kilowatts.

Shown on the cover of this week's *SCIENCE NEWS LETTER* is the 180,000-kilowatt Dresden Nuclear Power Station built by General Electric. Dedicated Oct. 12 by the Commonwealth Edison Company at Dresden, Ill., it reached full power in June.

The Shippingport, Pa., Atomic Power Station, built by Westinghouse, has been in operation since 1957. It produces 60,000-electric kilowatts. The Yankee Atomic Electric Company in Rowe, Mass., another Westinghouse installation, will produce 110,000 kilowatts at full capacity. All three of these nuclear plants are producing power for commercial use.

Nuclear power represents more than two-tenths of a percent of the installed capacity of United States electric generating plants with these three plants on line.

Twenty experimental and power nuclear plants, which will produce a total of 1,193,250 electric kilowatts, are being constructed at the present time. Seven more are in the planning stage. There are presently a number of experimental plants

throughout the country being used for a wide variety of experimental programs.

Russia has announced only one reactor, producing 5,000 kilowatts, which has been in operation since June, 1954. However, experts believe that Russia has five reactors being built or in the planning stage, including one that will produce 210,000 electric kilowatts.

Great Britain has four reactor plants that serve the dual purpose of producing plutonium as well as electric power. Three additional stations are under construction. It is estimated that Great Britain will have to rely wholly on nuclear power within the next hundred years, because conventional sources are being dissipated so rapidly.

France has three plutonium producing reactors, and a 63,000-kilowatt power reactor is due to be in operation this year. Two others are in the planning stage, including one that promises to produce 250,000 to 320,000 electric kilowatt power.

Belgium and Germany each has purchased from U. S. contractors power generation reactors, respectively 11,500 kilowatt and 15,000 kilowatt, which will be operating this year.

Several hundred guests attended the dedication of the \$51,000,000 Dresden Station, which produces enough electricity to meet the needs of a city of more than 200,000 population. John A. McCone, chairman of the U. S. Atomic Energy Commission, was the main speaker at the ceremony.

• *Science News Letter*, 78:265 October 22, 1960

ASTRONAUTICS

Plasma Around Missiles Distorts Radio Signals

► A PLASMA RESEARCH PROJECT at the University of California, Los Angeles, promises to help keep open radio contact with earth, the lifeline of future astronauts.

When a missile or spaceship leaves and enters the atmosphere, it cooks up the air to a point where the atoms break up into ions and electrons, forming layers of ionized gas, or plasma.

The plasma surrounds the space vehicle like an insulating envelope, which can block or distort radio signals to the ground.

Dr. Warren Flock, an associate engineer who did research for his Ph.D. at UCLA, simulated the spaceship's plasma problem in the laboratory.

He found that the electrons in the plasma layer can change the direction of radio waves sent to the ground, and that the degree of distortion depends on the number of electrons and the thickness of the plasma layer.

Using a higher radio wave frequency might be one way of overcoming the difficulty, but this, in turn, can raise a number of new problems.

Dr. Flock believes that his research helps to define what the problem is, which is a necessary first step in finding a solution.

In September Dr. Flock joined the University of Alaska as associate professor of geophysics, where he hopes to continue his research.

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RADIO ASTRONOMY

Universal Decoding Plan for Interstellar Messages

► A UNIVERSAL DECODING scheme for revealing possible messages in radio waves detected from stars near the solar system has been reported by Dr. Philip Morrison of Cornell University, Ithaca, N. Y.

He told the Philosophical Society of Washington that signals containing intelligent information could be incorporated in the radio waves without the use of language.

Dr. Morrison said the search made at the National Radio Astronomy Observatory, Green Bank, W. Va., for radio signals from intelligent life forms on other planets of relatively nearby stars had, at best, only one chance in 20 of detecting such signals, because the radio antenna used was too small.

Another try, with improved electronic equipment, will be made soon at this observatory, the National Science Foundation reported, but Dr. Morrison believes a bigger receiving antenna would give much better chances of success.

He suggested the best chance would be from about half a dozen non-steerable, but very large radio dishes, such as the 500-foot antenna now under construction in Puerto Rico.

Dr. Morrison said that only after several years of unsuccessful listening to outer space signals with several of such large reflectors would he be convinced there were no such signals.

Dr. Otto Struve, director of the National Radio Astronomy Observatory, agrees with Dr. Morrison that the chances are good of eventually achieving positive results from Project Ozma, when the largest possible sample of solar type stars has been examined over a period of time.

• *Science News Letter*, 78:265 October 22, 1960

CHEMISTRY

Synthetic Rubber Now Made Into Foam

► SYNTHETIC RUBBER LATEX can now be made into a foam product by a "cheap and fast" method reported to the International Synthetic Rubber Symposium in London.

The technique, called chemical agglomeration, uses polyvinyl methylether to enlarge the size of the tiny solid rubber particles in the latex, raising the amount of rubber solids so that the synthetic can be used for foam products.

Foam rubber manufacturers require a free-flowing latex that is approximately two-thirds solid rubber. While natural latex fills these requirements, most synthetic latexes take on the consistency of putty when concentrated to this high rubber content.

E. L. Borg of the Naugatuck Chemical Division of United States Rubber Company said the polyvinyl methylether causes the rubber particles to cluster, or agglomerate, into larger particles. The chemical is used during the concentration process.

• *Science News Letter*, 78:265 October 22, 1960

ASTRONOMY

Venus Shines in Early Evening

Moon, Venus and Jupiter are brightest objects in November sky. Mercury, closest planet to the sun, will cross the sun's face Nov. 7, James Stokley reports.

► **SINCE EARLY SUMMER** the planet Venus has been visible low in the western sky at twilight. But now it is drawing farther from the sun and remains visible long enough that you can see it in the west even after the sky is completely dark. As it is many times brighter than any other star or planet, you should have no trouble identifying it.

During November Venus moves south of another bright planet. This is Jupiter, and although it is about a sixth as bright as Venus, it still exceeds any other object in the sky, except for the moon. The two planets will be closest on Nov. 18. On Nov. 21 the crescent moon passes Jupiter and then Venus. This happens during daylight hours in North America but that evening the three bodies will be in the same part of the sky. And a little farther east is a third planet, Saturn, about an eighth as bright as Jupiter. During the night of the 21st, the moon passes Saturn.

Of all the planets, the closest to the sun is Mercury, which never gets far enough from the sun to be visible except low in the west at twilight or in the east at dawn. On Nov. 24 it will be farthest west of the sun. For a few mornings about that date you may be able to see it near the southeastern horizon before sunrise.

Mercury Crosses the Sun

On Nov. 7 Mercury does something quite unusual when it crosses the sun's face, in what is called a "transit." To see the tiny spot on the bright solar disc, however, you will need some kind of telescope, properly equipped to observe the brilliant sun. The last such transit was in 1957; the next after this will be in 1970.

None of the planets mentioned appear on the accompanying maps, which show the sky as it looks about 10 p.m., your own kind of standard time, at the first of November; 9 p.m. on the 15th and 8 p.m. on the 30th. However, Mars is shown. It rises about nine at the beginning of November and seven at the end.

Mars is in the constellation of Gemini, the twins, and is distinctly red in color. It is about half as bright as Jupiter but when it first appears, low in the east, its light will be dimmed on account of increased absorption by the earth's atmosphere.

Near Mars are some of the brilliant winter constellations, now beginning to appear in the evening sky. Just to the right of Gemini is Orion, the warrior, with two first magnitude stars: Betelgeuse and Rigel, likewise dimmed on account of their low altitude. Above Orion is Taurus, the bull, with the reddish star Aldebaran. And above

Gemini is Auriga, the charioteer, in which Capella shines.

Low in the south you may see the star Fomalhaut, in Piscis Austrinus, the southern fish. Considerably higher are the four stars making the "great Square," which connects Andromeda, the chained princess, and Pegasus, the winged horse. And toward the west you find Aquila, the eagle, with Altair, another star of the first magnitude.

Since the earth is the third planet out from the sun, only Mercury and Venus, which are closer to the sun, can come between the sun and earth. Our distance from the sun is about 93,000,000 miles; Mercury's about 36,000,000 and that of Venus about 67,000,000 miles. While the earth takes 365¼ days to go once around the sun, Mercury goes around in 88 days and Venus in 225 days. These periods might be called the "years" of the planets.

Suppose that Mercury and the earth are both in the same direction from the sun, as they were on July 16. On Oct. 12, just 88 days later, Mercury had completed a trip around the sun but it was not in the direction of the earth. We had moved on, so not until Nov. 7 will Mercury again be in the position known as "inferior conjunction," between sun and earth.

Mercury comes to inferior conjunction

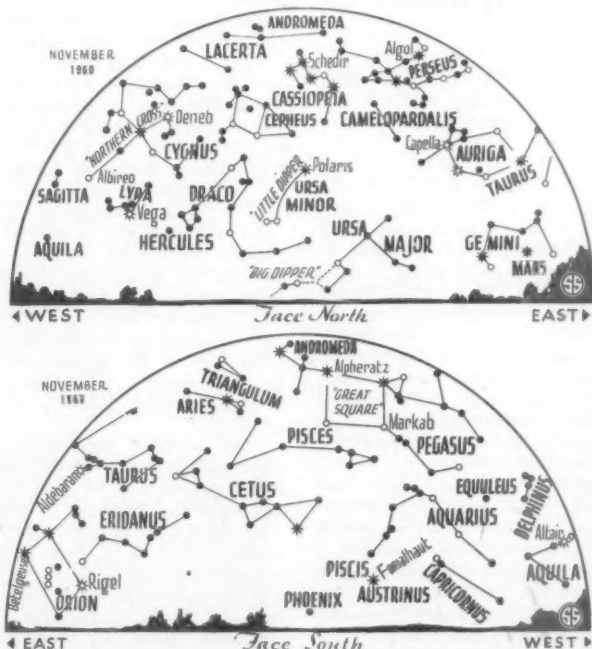
every 116 days, on the average. This is known as its "synodic period." But generally, when it comes to such a conjunction, it is not exactly between sun and earth. Generally it is a little to the north or south of the line that joins these two bodies. From earth, therefore, it does not pass in transit across the solar disc. Only in November or, less often, in May, can Mercury approach closely enough to the sun-earth line that a transit occurs, and that happens now.

The last November transit occurred in 1953, on Nov. 14, and the last in the spring on May 5, 1957. The next transit after this will come May 8, 1970.

Venus Transit in 1882

Venus, which is the other planet that moves in an orbit inside ours, may also transit the sun's disc, but this happens much more rarely. The last was in 1882 and the next will be in 2004. When that happens one can see it with the naked eye, provided, of course, that he has some protection for the eyes, such as heavily smoked glass. Looking at the sun directly may cause serious injury.

Mercury is considerably smaller than Venus, as well as farther away. Hence the tiny dot that it makes against the bright background of the sun is so small that you cannot see it with the naked eye, even with the necessary protection. A telescope is required, and this also must have a special attachment, in order to look at the sun safely.



• * • • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

However, you can use a telescope to project an image of the sun on a sheet of white paper. The instrument must be firmly mounted, as on a tripod, and pointed toward the sun.

Then, if you pull the eyepiece out from its normal focus and hold the white paper perhaps a foot or so away from the eyepiece (moving the paper back and forth until the focus is located), you should be able to get a sharp solar image, the size of a dinner plate or larger.

The paper will also be illuminated by the direct rays of the sun but you can shade it by a large piece of cardboard, with a hole in the middle, placed around the eye end of the telescope. With such an arrangement, and a telescope of at least moderate size, Mercury should show as a tiny speck, slowly moving across the disc of light.

The exact times of the beginning and end of the transit, known as "ingress" and "egress," will vary a little with the observer's location. However, it will start at about 9:35 a.m., EST, and end at about 2:12 p.m. Ingress will take place across the lower edge of the sun, as viewed generally in North America; and egress from the right hand edge. West of a line from the northwest shore of Hudson Bay to southern California, ingress will occur before the sun has risen.

Celestial Time Table for November

3	6:58 a.m.	Full moon
7	12:00 noon	Mercury between earth and sun
8	7:00 p.m.	Moon passes south of Mars
9	4:00 a.m.	Moon in apogee (farthest from earth), distance 251,500 miles
10	3:08 a.m.	Algol (variable star in Perseus) at minimum brightness
11	8:48 a.m.	Moon in last quarter
12	11:57 p.m.	Algol at minimum
15	8:46 p.m.	Algol at minimum
16	early a.m.	Meteors visible apparently radiating from constellation of Leo (Leonids)
18	6:47 p.m.	New moon
19	9:00 p.m.	Venus passes south of Jupiter
20	11:00 p.m.	Moon in perigee (nearest earth), distance 225,700 miles
21	10:00 a.m.	Moon passes north of Jupiter
22	2:00 p.m.	Moon passes north of Venus
23	3:00 a.m.	Moon passes north of Saturn
24	3:00 a.m.	Mercury farthest west of sun; visible low in southeast just before sunrise for a few days about now
25	10:42 a.m.	Moon in first quarter
28	2:00 a.m.	Venus passes south of Saturn
		Subtract one hour for CST, two hours for MST, and three for PST.

• Science News Letter, 78:266 October 22, 1960

ROCKETS AND MISSILES

Ball Simulates Satellite Tumbling

A FIBER-GLASS BALL ten feet in diameter has been installed at Brooks Air Force Base in San Antonio, Tex., for studies of satellite tumbling and spinning. A man can ride inside the ball, which itself rides on a circular stream of air. From the system, scientists hope to learn more about man's ability to perceive complex rotation and to tolerate the physical and mental stresses of rotation.

• Science News Letter, 78:267 October 22, 1960

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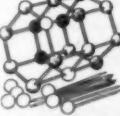
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Books of the Week

For the editorial information of our readers, books received for review are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C.

ALGEBRA PROBLEMS—Donald S. Russell—Barnes & Noble, 134 p., paper, \$1.75. Source for problem solutions for student of intermediate algebra.

BIG GAME HUNTER: Carl Akcey—Felix Sutton—Messner, 192 p., \$2.95. Juvenile biography about American naturalist pioneer in taxidermy.

THE BIRTH OF THE GODS: The Origin of Primitive Beliefs—Guy E. Swanson—Univ. of Mich. Press, 260 p., \$4.95. Systematic explanation of the origins of religion written by sociologist.

CANCER: DISEASE OF CIVILIZATION? An Anthropological and Historical Study—Vilhelm Steffanson, introd. by Rene Dubos—Hill & Wang, 180 p., \$3.95. Noted Arctic explorer and anthropologist presents his observations among Eskimos on the occurrence of various forms of disease, particularly cancer.

CANCER, COCAINE AND COURAGE: The Story of Dr. William Halsted—Arthur J. Beckhard and William D. Crane—Messner, 191 p., \$2.95. Juvenile biography.

CONTROLLED THERMONUCLEAR REACTIONS: An Introduction to Theory and Experiment—Samuel Glasstone and Ralph H. Lovberg—Van Nostrand, 523 p., illus., \$5.60. Survey of basic principles and present approaches to achieving controlled fusion.

COPERNICUS—Henry Thomas—Messner, 192 p., \$2.95. Juvenile biography.

COUNTDOWN: The Story of Cape Canaveral—

William Roy Shelton, foreword by Major General D. N. Yates, USAF—Little, 185 p., illus., \$3.50. For space-minded young Americans.

THE COURAGE OF DR. LISTER—Iris Noble—Messner, 191 p., \$2.95. About the 19th century surgeon who introduced the principle of antiseptic surgery.

DEVELOPMENT OF THE PERCEPTUAL WORLD—Charles M. Solley and Gardner Murphy—Basic Bks., 353 p., illus., \$6.50. Presents theoretical arguments on perceptual learning and analysis of the components of the perceptual act and how these components are altered through learning.

THE FIRST BOOK OF SOUND: A Basic Guide to the Science of Acoustics—David C. Knight—Watts, F., 93 p., illus., \$1.95. Teaches boys and girls what causes sound and how it behaves.

HIGH TIMBER: The Story of American Forestry—Charles I. Coombs—World Pub. Co., 223 p., photographs, \$4.95. Tells young people about modern forestry practices.

A HISTORY OF THE WARFARE OF SCIENCE WITH THEOLOGY IN CHRISTENDOM, Vols. I & II—Andrew Dickson White—Dover, 415 p., 474 p., paper, \$1.85 each. Unabridged reprint of 1896 edition.

IN YOUR OPINION . . .—John M. Fenton, foreword by George Gallup—Little, 220 p., \$3.95. The managing editor of the Gallup Poll looks at polls, politics and the people from 1945 to 1960.

INTRODUCTION TO MODERN ALGEBRA—John L. Kelley with R. Dubisch and S. Taylor—Van Nostrand, 338 p., paper, \$2.75. Official textbook for NBC's Continental Classroom.

JENNER AND THE MIRACLE OF VACCINE—Edward F. Dolan, Jr.—Dodd, 242 p., \$3.50. Juvenile biography of the medical pioneer and discoverer of the smallpox vaccine.

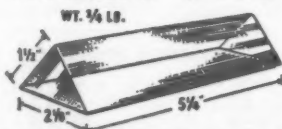
LEARNING THEORY AND THE SYMBOLIC PROCESSES—O. Hobart Mowrer—Wiley, 473 p., illus., \$8.50. Describes and interprets the developments of the last decade in study of the symbolic processes.

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3823 Sunset Blvd. Los Angeles 26, Calif.

MAN AND HIS BODY: The Wonders of the Human Mechanism—Benjamin F. Miller and Ruth Goode—Simon & Schuster, 375 p., illus., \$5.95. Makes clear the complex and efficient mechanisms of the body, for the general reader.

NOTES ON MICROSCOPICAL TECHNIQUE FOR ZOOLOGISTS—C. F. A. Pantin—Cambridge Univ. Press, 77 p., illus., paper, \$1.75. Reprint.

NUCLEAR REACTOR STABILITY—A. Hitchcock—Temple (Simmons-Boardman), 61 p., paper, \$1.75. Nuclear engineering monograph.

PAPERS ON SOIL, 1959 MEETINGS—Donald M. Burmister and others—Am. Soc. for Testing Materials, 375 p., illus., \$9. Symposia on time rates of loading in soil testing, on Atterberg limits and on soils for engineering purposes.

POPULATION REDISTRIBUTION AND ECONOMIC GROWTH, UNITED STATES, 1870-1950: II. Analyses of Economic Change—Simon Kuznets, Ann Ratner Miller and Richard A. Easterlin, introd. by Dorothy Swaine Thomas—Am. Philosophical Soc., 289 p., \$5. Monograph and synthesis of significant interrelations, based on reference tables in Vol. I, published in 1957.

THE POWER OF THE DEMOCRATIC IDEA: Special Studies Project Report VI—Rockefeller Brothers Fund—Doubleday, 75 p., paper, 75¢. Realistic assessment of the concepts, problems and prospects of the democratic system.

REALM OF MEASURE—Isaac Asimov—Houghton, 186 p., diagrams by R. Belmore, \$2.75. Explains the underlying theories of measure, from basic to complex units, for young people.

ROCK OIL TO ROCKETS: The Story of Petroleum in America—Dirk Gringhuis—Macmillan, 28 p., illus. by author, \$3. Child's introduction to history of petroleum.

STANDARDIZATION ACTIVITIES IN THE UNITED STATES: A Descriptive Directory—Sherman F. Booth—NBS (GPO), 210 p., \$1.75. Lists and describes the work of about 350 U. S. organizations involved in standardization activities.

STATISTICAL THERMODYNAMICS: A Course of Seminar Lectures—Erwin Schrodinger—Cambridge Univ. Press, 95 p., paper, \$1.65. Reprint of second edition.

THE TORCH—Wilder Penfield—Little, 370 p., \$4.75. Famous brain surgeon bases this novel on the life and work of Hippocrates, as revealed by the author's own research.

UNITED STATES EARTHQUAKES 1958—Rutledge J. Brazee and William K. Cloud—Coast & Geod. Survey (GPO), 76 p., illus., paper, 40¢.

THE UNIVERSE AT LARGE—Hermann Bondi—Doubleday, 154 p., illus., 95¢. Distinguished mathematician examines in layman's language the theories and laws of modern cosmology.

VITRUVIUS: The Ten Books On Architecture—Transl. by Morris Hicky Morgan—Dover, 331 p., illus., paper, \$2. Reprint of treatise by the Roman architect and engineer.

• Science News Letter, 78:268 October 22, 1960

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- "Introduction to Boolean Algebra for Circuits and Switching" by Edmund C. Berkeley.
- "How to Go from Brainiacs to Automatic Computers" by Edmund C. Berkeley.
- List of references to computer literature including "Minds and Machines" by W. Sluckin, published by Penguin Books (Baltimore), 1954, 233 pages, and other references.

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WHO IS EDMUND C. BERKELEY? Author of *Giant Brains or Machines That Think*, Wiley, 1949, 270 pp. (15,000 copies sold); Author of *Computers: Their Operation and Applications*, Reinhold, 1956, 366 pp.; Author of *Symbolic Logic and Intelligent Machines*, Reinhold, 1959, 203 pp.; Editor & Publisher of the magazine, *Computers and Automation*; maker and developer of small robots; Fellow of the Society of Actuaries; Secretary (1947-53) of the Association for Computing Machinery; Designer of all the Tyniacs and Brainiacs.

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New Machines and Gadgets

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 1062. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

❁ **CIGARETTE SPACER**, an automatic cigarette case that will not open except at pre-set times, is designed to curb chain smoking. The smoker may pre-set the smoking interval at from 10 minutes to an hour. Once the lid is closed, it will not reopen until the interval has elapsed.

• Science News Letter, 78:270 October 22, 1960

❁ **LIGHT, PORTABLE DISHWASHER** fits on a kitchen counter and operates, without electricity, by water pressure at the faucet. No installation is required. The unit features a patented spinner that sends jet sprays of detergent and hot water about as it moves at hundreds of revolutions a minute. The whole unit weighs 11 pounds.

• Science News Letter, 78:270 October 22, 1960

❁ **AUTOMOBILE RECORD PLAYER**, made in the Netherlands, plays regular 45 rpm records. The player fits in any car and uses the car radio system for amplification. Power comes from the car battery. To play the phonograph, a record is inserted into a slot and all operations thereafter are automatic.

• Science News Letter, 78:270 October 22, 1960

❁ **CONTACT LENS INSERTER**, shown in the photograph, has two rollers that hold eyelids apart while pressure on a lever brings lens, in a rubber cup, into contact



with the eye's cornea. The instrument is less than seven inches long and is said to overcome the difficulty many people have in putting a foreign body, the lens, into the eye.

• Science News Letter, 78:270 October 22, 1960

❁ **SILVER HOLLOWARE FINISH** prevents tarnish and eliminates polishing for

years—better and longer than lacquers now in use. The new finish is made of a silicone material that sticks to silver with unusual tenacity. It is being applied at the factory on new silver pieces but will also be available in a spray can for home use.

• Science News Letter, 78:270 October 22, 1960

❁ **EYEGLASS IDENTIFICATIONS**, tiny bands that adhere to the insides of the temples of eyeglasses, are engraved in gold. A name and phone number fit on one band, an address fits on the other. As many as 34 characters may be inscribed on each strip.

• Science News Letter, 78:270 October 22, 1960

❁ **FAMILY TREES**, silver-plated or brass, hold family pictures in frames dangling from the tree limbs. The silver-plated tree is nine inches tall and holds eight frames. The six-inch brass tree holds five frames. A brass desk set holds two pictures.

• Science News Letter, 78:270 October 22, 1960

❁ **BANTAM POSTAGE METER**, weighing only five pounds, will stamp packages direct, while competitive machines stamp a tape which must then be placed on the package. The meter also stamps letters, of course, and may be used to imprint free postmark advertising along with the stamp value.

• Science News Letter, 78:270 October 22, 1960



Nature Ramblings



As the seasonal nip in the air sets the plant kingdom to yawning for winter sleep, perhaps the brightest spots in the autumn-colored hills are the blazing sumacs.

All species turn artist, dealing especially in deep orange-reds and wine-crimsons, whether the fuzzy-boughed staghorn sumac of moist places, the roundish-leaved fragrant sumac of starved soils and gravelly roadsides, the wing-twigged dwarf sumac of the uplands, or the flat-twigged, jagged-leaved smooth sumac of the open fields.

Even the misanthropic poison sumac, distinguished by the combination of smooth-edged leaves and round, smooth twigs, forgets its knavery and develops at least an appearance of royalty.

The poison ivy, a true sumac, also changes its innocent-looking but treacherous green for a wry smile in motley yellow and scarlet.

The color change in these poisonous species renders them less dangerous than at any other time except, of course, during the leafless winter months.

Besides being a most pleasing sight to

Sumac



the human eye, the sumacs are a much-sought food source for wild animals during the winter.

Pheasant, mourning dove, ruffed and sharptail grouse, bobwhite and skunk delight in the dense clusters of hard little fruits, her in the benign sumacs and white in the poison varieties. The twigs are cropped by moose, deer and cottontail rabbit.

—GLORIA BALL

• Science News Letter, 78:270 October 22, 1960

Do You Know

As an alloy with copper, beryllium results in the highest strength copper-based alloy.

In 1948, 86% of the household cleaners sold were soap or soap-based; now the synthetic detergents, both liquid and powders, account for 78% of the household cleaners sold in the U. S.

The most widely used game bird on shooting preserves is the ring-necked pheasant.

More than 90% of the nursing homes in the United States are operated under private commercial ownership.

There are six major species of quail in the U. S.: Bobwhite, Gambel or Desert, Valley or California, Mountain, Scales and Massena or Mearns' quail.

Free Europe is expected to nearly triple its synthetic rubber capacity in the next two years.

TECHNOLOGY

Microwave Tubes Improved at Laboratory

► IMPROVEMENTS in microwave tubes that will make possible new superpower radio frequency sources capable of producing many times more power than conventional types have been made by scientists at the General Electric Research Laboratory, Schenectady, N. Y.

Two new tube types are the "multiple beam klystron" and the "Orthotron." Superpower radio frequency is of immediate importance to the nation's defense in radar detection of long-range missiles. The technology is also important in the location of and communication with smaller, faster targets at great distances.

• Science News Letter, 78:271 October 22, 1960

Questions

ANTHROPOLOGY—Of how many individuals have remains been found in Shanidar cave to date? p. 259.

BIOCHEMISTRY—What are some of the drugs that can increase vitamin C production? p. 261.

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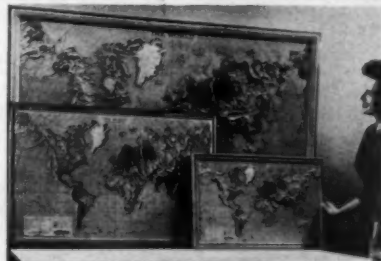
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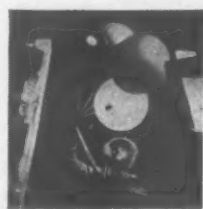
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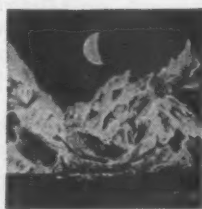
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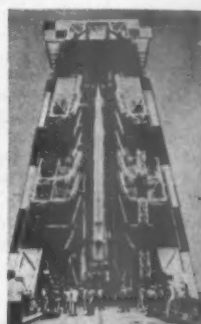
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